CLAIMS

1.    Device for changing the control times of gas-exchange valves in an internal combustion engine, the device comprising: a rotary piston adjustment device for angular adjustment of a camshaft relative to a crankshaft, with the following features:

the device (1) is mounted on a drive end of a camshaft supported in a cylinder head of the internal combustion engine and is a hydraulic actuator, which can be controlled as a function of various operating parameters of the internal combustion engine,

the device (1) includes a drive wheel (2), in driven connection with the crankshaft of the internal combustion engine, and a vane rotor (3), locked in rotation with the camshaft of the internal combustion engine,

the drive wheel (2) has a hollow space, which is formed by a hollow cylindrical peripheral wall (4) and two lateral walls (5, 6) and in which at least one hydraulic work chamber (9) is formed by at least two radial limit walls (7, 8),

the vane rotor (3) has, on a periphery of a rotor hub (10) thereof, at least one vane (11), which extends radially into the work chamber (9) of the drive wheel (2) and which sub-divides the work chamber into an A pressure chamber (12) and a B pressure chamber (13),

the pressure chambers (12, 13) are adapted to produce a pivoting motion or to fix the vane rotor (3) relative to the drive wheel (2) and thus the camshaft relative to the crankshaft through selective or simultaneous pressurization with a hydraulic pressure medium,

the vane rotor (3) is mechanically couplable with the drive wheel (2) in a preferred base position within an adjustment region by a separate locking element (14) when the pressure medium pressure falls below a pressure necessary for adjustment,

the locking element (14) is arranged in an axial bore hole (15) in the rotor hub (10) of the vane rotor (3) and can be moved by a spring element (16) into a

locked position within a receptacle (19) in one of the lateral walls (5, 6) of the drive wheel (2),

the receptacle (19) for receiving the locking element (14) is connected hydraulically to at least one pressure chamber (12 or 13) within the device (1) via a pressure medium supply groove (18) provided in an inner surface of a corresponding one of the lateral walls (5, 6) of the drive wheel (2),

upon pressurization of the pressure chamber (12 or 13) with the pressure medium supply groove (18), the locking element (14) can move hydraulically into an unlocked position within the axial bore hole (15) in the rotor hub (10) of the vane rotor (3),

a local stop (20) is arranged within the pressure medium supply groove (18) provided in the inner surface of the corresponding lateral wall (5, 6) of the drive wheel (2), which interrupts the pressure medium supply to the receptacle (19) of the locking element (14) when the vane rotor (3) has been pivoted from the base position, and

in the side surface of the rotor hub (10) of the vane rotor (3) opposite the pressure medium supply groove (18) there is a bypass (21), such that the local stop (20) can be bypassed and a pressure medium supply to the receptacle (19) of the locking element (14) is possible only when the vane rotor (3) has been pivoted into the base position.

2.    Device according to claim 1, wherein the receptacle (19) for the locking element (14) and the pressure medium supply groove (18) are arranged in an inner surface of the lateral wall (5) of the drive wheel (2) facing away from the camshaft and are produced by stamping, and the local stop (20) in the pressure medium supply groove (18) is provided as a material crossbar remaining after the stamping.

3.    Device according to claim 2, wherein the bypass (21) for the local stop (20) in the pressure medium supply groove (18) is arranged in the side surface of the rotor hub (10) of the vane rotor (3) facing away from the camshaft and is provided as an elongated hole-like recess, which can be formed in a powder metallurgical production of the rotor hub (10) of the vane rotor (3) without further tools.